MINOR SOURCE OPERATING PERMIT
Office of Air Quality

Polar Minerals, Inc.
1703 Bluff Road
Mt. Vernon, Indiana 47620

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this permit.

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Operation Permit No.: MSOP 129-9292-00023	
Original signed by Paul Dubenetzky Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: May 14, 2001 Expiration Date: May 14, 2006

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SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in Conditions A.1 and A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

The Permittee owns and operates a stationary talc, barite and calcium carbonate processing source.

Authorized Individual:	Debra L Ambrose
Source Address:	1703 Bluff Road, Mt. Vernon, Indiana 47620
Mailing Address:	1703 Bluff Road, Mt. Vernon, Indiana 47620
Phone Number:	812 - 838 - 5236
SIC Code:	3295
County Location:	Posey
County Status:	Attainment for all criteria pollutants
Source Status:	Minor Source Operating Permit Minor Source, under PSD; Minor Source, Section 112 of the Clean Air Act

A.2 Emissions Units and Pollution Control Equipment Summary

This stationary talc, barite and calcium carbonate processing source is approved to operate the following emissions units and pollution control devices:

(a) One (1) grinding plant, installed in 1991, exhausted to stacks A through K and M controlled by twelve (12) baghouses, known as A through K and M, capacity: 14.0 tons of talc, barite or calcium carbonate per hour, consisting of the following:

(1) One (1) crusher system (capacity 50.0 tons per hour),

(2) Two (2) silos,

(3) One (1) roller mill system,

(4) One (1) classifier,

(5) Six (6) bins,

(6) One (1) mill system; and

(7) One (1) gas-fired heater, rated at 4.0 million British thermal units per hour.

(b) One (1) hammer mill micronizer, known as Bepex Mill #1, installed in 1994, exhausted to stacks N (#186) through Y (#197) connected pneumatically to baghouses N (#186) through Y (#197), capacity: 2,000 pounds per hour.

(c) Four (4) silos, known as N through Q, installed in 1994, exhausted to stacks N (#186) through

Q (#189) connected pneumatically to baghouses N (#186) through Q (#189), capacity: 8,313 cubic feet per hour, each.

(d) Two (2) silos, known as R and S, installed in 1994, exhausted to stacks R (#190) and S (#191), connected pneumatically to baghouses R (#190) and S (#191), capacity: 6,107 cubic feet per hour, each.

(e) Five (5) silos, known as T through X, installed in 1994, exhausted to stacks T (#192) through X (#196), connected pneumatically to baghouses T (#192) through X (#196), capacity: 11,083 cubic feet per hour, each.

(f) One (1) Ball Mill micronizer, capacity: 15,000 pounds per hour and one (1) Bepex Mill micronizer, capacity: 2,000 pounds per hour, two (2) silos, capacity: 6,688 cubic feet, each and one (1) steric acid treatment surface coater, installed in 1994, connected pneumatically to baghouses Z (#198) through AC (#201)

(g) One (1) pellet mill, known as Pellet Mill , installed in 1996, exhausted to stacks AE and AF pneumatically connected to baghouses AE and AF, capacity: 16,000 pounds of talc per hour.

(h) One (1) Bepex Mill micronizer, known as #3, exhausted to Stack AN, connected to baghouse AN for particulate matter control, installed in 1997, capacity: 1.0 ton per hour.

(i) Five (5) material storage silos, known as Silo A through Silo D and Silo 14, exhausted to stacks AG through AK respectively, connected to baghouses AG through AK respectively, installed in 1997, capacity: 12,038 cubic feet, each. These silos are also connected to a common baghouse, known as AM for unloading purposes.

SECTION B GENERAL CONDITIONS

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1.1 AND 40 CFR 52.780, WITH CONDITIONS LISTED BELOW.

B.1 Permit No Defense [IC 13]

This permit to operate does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Definitions

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, any applicable definitions found in IC 13-11, 326 IAC 1-2, and 326 IAC 2-1.1-1 shall prevail.

B.3 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

B.4 Modification to Permit [326 IAC 2]

All requirements and conditions of this operating permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of operating permits pursuant to 326 IAC 2 (Permit Review Rules).

B.5 Permit Term [326 IAC 2-6.1-7]

This permit is issued for a fixed term of five (5) years from the original date, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications or amendments of this permit do not affect the expiration date.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

C.1 PSD Minor Source Status [326 IAC 2-2] [40 CFR 52.21]

(a) The total source potential to emit of all criteria pollutants is less than two hundred fifty (250) tons per year. Therefore the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 will not apply.

(b) Any change or modification which may increase potential to emit PM_{10}, SO_2, VOC, NO_X or CO to 100 tons per year from this source, shall cause this source to be considered a major source under 326 IAC 2-7, and shall require approval from IDEM, OAQ prior to making the change.

C.2 Hazardous Air Pollutants (HAPs) [326 IAC 2-7]

Any change or modification which may increase potential to emit to ten (10) tons per year of any single hazardous air pollutant, twenty-five (25) tons per year of any combination of hazardous air pollutants from this source, shall cause this source to be considered a major source under Part 70 Permit Program, 326 IAC 2-7, and shall require approval from IDEM, OAQ prior to making the change.

C.3 Preventive Maintenance Plan [326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) after issuance of this permit, including the following information on each emissions unit:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

(b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement the Preventive Maintenance Plan does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) PMP's shall be submitted to IDEM, OAQ, upon request and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its Preventive Maintenance Plan whenever lack of proper maintenance causes or contributes to any violation.

C.4 Permit Revision [326 IAC 2-5.1-3(e)(3)] [326 IAC 2-6.1-6]

(a) The Permittee must comply with the requirements of 326 IAC 2-6.1-6 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Any such application should be certified by the "authorized individual" as defined by 326 IAC 2-1.1-1.

(c) The Permittee shall notify the OAQ within thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

C.5 Inspection and Entry [326 IAC 2-5.1-3(e)(4)(B)] [326 IAC 2-6.1-5(a)(4)]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) Utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

C.6 Transfer of Ownership or Operation [326 IAC 2-6.1-6(d)(3)]

Pursuant to [326 IAC 2-6.1-6(d)(3)]:

(a) In the event that ownership of this source is changed, the Permittee shall notify IDEM, OAQ, Permits Branch, within thirty (30) days of the change.

(b) The written notification shall be sufficient to transfer the permit to the new owner by a notice-only change pursuant to 326 IAC 2-6.1-6(d)(3).

(c) IDEM, OAQ, shall issue a revised permit.

The notification which shall be submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

C.7 Permit Revocation [326 IAC 2-1-9]

Pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to operate may be revoked for any of the following causes:

(a) Violation of any conditions of this permit.

(b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.

(c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.

(d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

(e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of this article.

C.8 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary alternative opacity limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

C.9 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.10 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted by using good engineering practices (GEP) pursuant to 326 IAC 1-7-3.

Testing Requirements

C.11 Performance Testing [326 IAC 3-6] [326 IAC 2-1.1-11]

(a) Compliance testing on new emissions units shall be conducted within sixty (60) days after achieving maximum production rate, but no later than one hundred eighty (180) days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015

Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

(b) All test reports must be received by IDEM, OAQ, within forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

Compliance Monitoring Requirements

C.12 Compliance Monitoring [326 IAC 2-1.1-11]

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. All monitoring and record keeping requirements not already legally required shall be implemented when operation begins.

C.13 Maintenance of Monitoring Equipment [IC 13-14-1-13]

(a) In the event that a breakdown of the monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem. To the extent practicable, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less frequent than required in Section D of this permit until such time as the monitoring equipment is back in operation. In the case of continuous monitoring, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less than one (1) hour this time frame is determined on a case by case basis until such time as the continuous monitor is back in operation.

(b) The Permittee shall install, calibrate, quality assure, maintain, and operate all necessary monitors and related equipment. In addition, prompt corrective action shall be initiated whenever indicated.

C.14 Monitoring Methods [326 IAC 3]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, or other approved methods as specified in this permit.

C.15 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 1-6]

(a) The Permittee is required to implement a compliance monitoring plan to ensure that reasonable information is available to evaluate its continuous compliance with applicable requirements. This compliance monitoring plan is comprised of:

(1) This condition;

(2) The Compliance Determination Requirements in Section D of this permit;

(3) The Compliance Monitoring Requirements in Section D of this permit;

(4) The Record Keeping and Reporting Requirements in Section C (Monitoring Data Availability, General Record Keeping Requirements, and General Reporting

Requirements) and in Section D of this permit; and

(5) A Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. CRP's shall be submitted to IDEM, OAQ upon request and shall be subject to review and approval by IDEM, OAQ. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee and maintained on site, and is comprised of:

(A) Response steps that will be implemented in the event that compliance related information indicates that a response step is needed pursuant to the requirements of Section D of this permit; and

(B) A time schedule for taking such response steps including a schedule for devising additional response steps for situations that may not have been predicted.

(b) For each compliance monitoring condition of this permit, appropriate response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to perform the actions detailed in the compliance monitoring conditions or failure to take the response steps within the time prescribed in the Compliance Response Plan, shall constitute a violation of the permit unless taking the response steps set forth in the Compliance Response Plan would be unreasonable.

(c) After investigating the reason for the excursion, the Permittee is excused from taking further response steps for any of the following reasons:

(1) The monitoring equipment malfunctioned, giving a false reading. This shall be an excuse from taking further response steps providing that prompt action was taken to correct the monitoring equipment.

(2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the permit, and such request has not been denied; or

(3) An automatic measurement was taken when the process was not operating; or

(4) The process has already returned to operating within "normal" parameters and no response steps are required.

(d) Records shall be kept of all instances in which the compliance related information was not met and of all response steps taken.

C.16 Actions Related to Noncompliance Demonstrated by a Stack Test

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize emissions from the affected emissions unit while the corrective actions are being implemented. IDEM, OAQ shall notify the Permittee within thirty (30) days, if the corrective actions taken are deficient. The Permittee shall submit

a description of additional corrective actions taken to IDEM, OAQ within thirty (30) days of receipt of the notice of deficiency. IDEM, OAQ reserves the authority to use enforcement activities to resolve noncompliant stack tests.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline. Failure of the second test to demonstrate compliance with the appropriate permit conditions may be grounds for immediate revocation of the permit to operate the affected emissions unit.

The documents submitted pursuant to this condition do not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

Record Keeping and Reporting Requirements

C.17 Malfunctions Report [326 IAC 1-6-2]

Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

(a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) or appointed representative upon request.

(b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAQ, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

(c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a) (1) through (6).

(d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.18 Monitoring Data Availability [326 IAC 2-6.1-2] [IC 13-14-1-13]

(a) With the exception of performance tests conducted in accordance with Section C- Performance Testing, all observations, sampling, maintenance procedures, and record keeping, required as a condition of this permit shall be performed at all times the equipment is operating at normal representative conditions.

(b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this permit is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this permit.

(c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.

(d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.

(e) At its discretion, IDEM may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.

(f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.19 General Record Keeping Requirements [326 IAC 2-6.1-2]

(a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years and available upon the request of an IDEM, OAQ, representative. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Records of required monitoring information shall include, where applicable:

(1) The date, place, and time of sampling or measurements;

(2) The dates analyses were performed;

(3) The company or entity performing the analyses;

(4) The analytic techniques or methods used;

(5) The results of such analyses; and

(6) The operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) Copies of all reports required by this permit;

(2) All original strip chart recordings for continuous monitoring instrumentation;

(3) All calibration and maintenance records;

(4) Records of preventive maintenance shall be sufficient to demonstrate that failure to implement the Preventive Maintenance Plan did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures. Records of response steps taken shall indicate whether the response steps were performed in accordance with the Compliance Response Plan required by Section C - Compliance Monitoring

Plan - Failure to take Response Steps, of this permit, and whether a deviation from a permit condition was reported. All records shall briefly describe what maintenance and response steps were taken and indicate who performed the tasks.

(d) All record keeping requirements not already legally required shall be implemented when operation begins.

C.20 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

(a) The reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

(c) Unless otherwise specified in this permit, any quarterly report shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(d) All instances of deviations must be clearly identified in such reports. A reportable deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit or a rule. It does not include:

(1) An excursion from compliance monitoring parameters as identified in Section D of this permit unless tied to an applicable rule or limit; or

(2) A malfunction as described in 326 IAC 1-6-2; or

(3) Failure to implement elements of the Preventive Maintenance Plan unless lack of maintenance has caused or contributed to a deviation.

(4) Failure to make or record information required by the compliance monitoring provisions of Section D unless such failure exceeds 5% of the required data in any calendar quarter.

A Permittee's failure to take the appropriate response step when an excursion of a compliance monitoring parameter has occurred or failure to monitor or record the required compliance monitoring is a deviation.

(e) Any corrective actions or response steps taken as a result of each deviation must be clearly identified in such reports.

(f) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period.

C.21 Annual Notification [326 IAC 2-6.1-5(a)(5)]

(a) Annual notification shall be submitted to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this permit.

(b) Noncompliance with any condition must be specifically identified. If there are any permit conditions or requirements for which the source is not in compliance at any time during the year, the Permittee must provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be, achieved. The notification must be signed by an authorized individual.

(c) The annual notice shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted in the format attached no later than March 1 of each year to:

Compliance Data Section, Office of Air Quality
Indiana Department of Environmental Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, IN 46206-6015

(d) The notification shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(a) One (1) grinding plant, installed in 1991, exhausted to stacks A through K and M controlled by twelve (12) baghouses, known as A through K and M, capacity: 14.0 tons of talc, barite or calcium carbonate per hour, consisting of the following:

(1) One (1) crusher system (capacity 50.0 tons per hour),

(2) Two (2) silos,

(3) One (1) roller mill system,

(4) One (1) classifier,

(5) Six (6) bins,

(6) One (1) mill system; and

(7) One (1) gas-fired heater, rated at 4.0 million British thermal units per hour.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-6.1-5(1)]

D.1.1 General Provisions Relating to NSPS [326 IAC 12-1] [40 CFR 60, Subpart A]

The provisions of 40 CFR 60 Subpart A - General Provisions, which are incorporated as 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR 60.670 - 60.676, Subpart OOO)

D.1.2 Nonmetallic Mineral Processing Plants NSPS [326 IAC 12-1] [40 CFR 60, Subpart OOO]

(a) Particulate matter emissions from the grinding plant shall not exceed 0.05 grams per dry standard cubic meter equivalent to 5.84 pounds per hour, and

(b) visible emissions from the grinding plant shall not exceed seven percent (7%) opacity.

D.1.3 Particulate Matter (PM) [326 IAC 6-3-2(c)]

(a) The particulate matter (PM) from the crushing system located in the grinding plant shall be limited to 44.6 pounds per hour, when operating at a process weight rate of 50.0 tons per hour, calculated by the following:

Interpolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour.

(b) The particulate matter (PM) from the grinding plant shall be limited to 24.0 pounds per hour,

when operating at a process weight rate of 14.0 tons per hour, calculated by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour.

D.1.4 Particulate Emissions Limitations for Facilities Constructed after September 21, 1983 [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4(a) the one (1) gas-fired heater, rated at 4.0 million British thermal units per hour shall not exceed 0.6 lb/MMBtu.

D.1.5 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for these emission units and their control devices.

Compliance Determination Requirements [326 IAC 2-1.1-11]

D.1.6 Testing Requirements [326 IAC 3-6] [NSPS Subpart OOO]

Within five (5) years from the date of the latest valid compliance demonstration, the Permittee shall perform particulate matter (grain loading) and opacity testing for the grinding plant operations. Tests shall be performed for the crusher system, stack A, one of the two silos, Stacks B or C, roller mill system, Stack D, classifier, Stack E, one of the six bins, Stacks F - K, and the mill system, Stack M. These test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. In addition to these requirements, IDEM may require compliance testing when necessary to determine if these facilities are in compliance.

Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.1.7 Visible Emissions Notations

(a) Visible emission notations of the grinding plant stack exhaust shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.1.8 Parametric Monitoring

The Permittee shall record the total static pressure drop across the baghouses used in conjunction with the grinding plant, at least once per shift when the grinding plant is in operation when venting to

the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 3.0 and 6.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge and Other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.1.9 Baghouse Inspections

An inspection shall be performed each calender quarter of all bags controlling the grinding plant when venting to the atmosphere. A baghouse inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting to the indoors. All defective bags shall be replaced.

D.1.10 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if there are no visible emissions or if the event qualifies as an emergency and the Permittee satisfies the emergency provisions of this permit (Section B- Emergency Provisions). Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

(b) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Record Keeping and Reporting Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.1.11 Record Keeping Requirements

(a) To document compliance with Condition D.1.7, the Permittee shall maintain records of daily visible emission notations for the grinding plant operations.

(b) To document compliance with Condition D.1.9, the Permittee shall maintain records of the results of the inspections required under Condition D.1.9 and the dates the vents are redirected.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(b) One (1) hammer mill micronizer, known as Bepex Mill #1, installed in 1994, exhausted to stacks N (#186) through Y (#197) connected pneumatically to baghouses N (#186) through Y (#197), capacity: 2,000 pounds per hour.

(c) Four (4) silos, known as N through Q, installed in 1994, exhausted to stacks N (#186) through Q (#189) connected pneumatically to baghouses N (#186) through Q (#189), capacity: 8,313 cubic feet per hour, each.

(d) Two (2) silos, known as R and S, installed in 1994, exhausted to stacks R (#190) and S (#191), connected pneumatically to baghouses R (#190) and S (#191), capacity: 6,107 cubic feet per hour, each.

(e) Five (5) silos, known as T through X, installed in 1994, exhausted to stacks T (#192) through X (#196), connected pneumatically to baghouses T (#192) through X (#196), capacity: 11,083 cubic feet per hour, each.

(f) One (1) Ball Mill micronizer, capacity: 15,000 pounds per hour and one (1) Bepex Mill micronizer, capacity: 2,000 pounds per hour, two (2) silos, capacity: 6,688 cubic feet, each and one (1) steric acid treatment surface coater, installed in 1994, connected pneumatically to baghouses Z (#198) through AC (#201)

(g) One (1) pellet mill, known as Pellet Mill , installed in 1996, exhausted to stacks AE and AF pneumatically connected to baghouses AE and AF, capacity: 16,000 pounds of talc per hour.

(h) One (1) Bepex Mill micronizer, known as #3, exhausted to Stack AN, connected to baghouse AN for particulate matter control, installed in 1997, capacity: 1.0 ton per hour.

(i) Five (5) material storage silos, known as Silo A through Silo D and Silo 14, exhausted to stacks AG through AK respectively, connected to baghouses AG through AK respectively, installed in 1997, capacity: 12,038 cubic feet, each. These silos are also connected to a common baghouse, known as AM for unloading purposes.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-6.1-5(1)]

D.2.1 General Provisions Relating to NSPS [326 IAC 12-1] [40 CFR 60, Subpart A]

The provisions of 40 CFR 60 Subpart A - General Provisions, which are incorporated as 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR 60.670 - 60.676, Subpart OOO)

D.2.2 Nonmetallic Mineral Processing Plants NSPS [326 IAC 12-1] [40 CFR 60, Subpart OOO]

(a) Particulate matter emissions from the grinding plant shall not exceed 0.05 grams per dry standard cubic meter, and

(b) visible emissions from the grinding plant shall not exceed seven percent (7%) opacity.

D.2.3 Particulate Matter (PM) [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the Bepex Mill, Ball Mill, Bepex Mill #1, Pellet Mill and Bepex Mill #3, shall be limited to 15.8, 4.10, 4.10,16.5 and 4.10 pounds per hour, respectively when operating at process weight rates of 1.0, 7.5 ,1.0, 8.0 and 1.0 tons per hour respectively, calculated by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

D.2.4 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for these emission units and their control devices.

Compliance Determination Requirements [326 IAC 2-1.1-11]

D.2.5 Particulate Matter (PM)

The baghouses for PM control shall be in operation at all times when the Bepex Mill, Ball Mill, Bepex Mill #1, Pellet Mill and Bepex Mill #3 are in operation.

D.2.6 Testing Requirements [326 IAC 3-6] [NSPS Subpart OOO]

Within five (5) years from the date of the latest valid compliance demonstration, the Permittee shall perform particulate matter (grain loading) and opacity testing for the grinding plant operations. Tests shall be performed for the Bepex Mill #1, one of the stacks N (#186) through Y (#197), Ball Mill and Bepex Mill, two of the Stacks Z (#198) through AC (#201), Pellet Mill, one of the Stacks AE and AF, and Bepex Mill, Stack AN. These test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. In addition to these requirements, IDEM may require compliance testing when necessary to determine if these facilities are in compliance.

Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.2.7 Visible Emissions Notations

(a) Visible emission notations of the Bepex Mill, Ball Mill, Bepex Mill #1, Pellet Mill and Bepex Mill #3 stack exhaust shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.2.8 Parametric Monitoring

The Permittee shall record the total static pressure drop across the baghouses used in conjunction with the Bepex Mill, Ball Mill, Bepex Mill #1, Pellet Mill and Bepex Mill #3, at least once per shift when the Bepex Mill, Ball Mill, Bepex Mill #1, Pellet Mill or Bepex Mill #3 is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 3.0 and 6.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge and Other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.2.9 Baghouse Inspections

An inspection shall be performed each calender quarter of all bags controlling the Bepex Mill, Ball Mill, Bepex Mill #1, Pellet Mill and Bepex Mill #3 when venting to the atmosphere. A baghouse inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting to the indoors. All defective bags shall be replaced.

D.2.10 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if there are no visible emissions or if the event qualifies as an emergency and the Permittee satisfies the emergency provisions of this permit (Section B- Emergency Provisions). Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

(b) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Record Keeping and Reporting Requirement [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.2.11 Record Keeping Requirements

(a) To document compliance with Condition D.2.7, the Permittee shall maintain records of visible emission notations of the Bepex Mill, Ball Mill, Bepex Mill #1, Pellet Mill and Bepex Mill #3 stack exhaust once per shift.

(b) To document compliance with Condition D.2.8, the Permittee shall maintain the following:

(1) Once per shift records of the following operational parameters during normal operation when venting to the atmosphere:

(A) Inlet and outlet differential static pressure; and

(B) Cleaning cycle operation.

(2) Documentation of the dates vents are redirected.

(c) To document compliance with Condition D.2.9, the Permittee shall maintain records of the results of the inspections required under Condition D.2.9 and the dates the vents are redirected.

(d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Air Quality
FAX NUMBER - 317 233-5967

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE IT HAS POTENTIAL TO EMIT 25 TONS/YEAR PARTICULATE MATTER ?_____, 25 TONS/YEAR SULFUR DIOXIDE ?_____, 25 TONS/YEAR NITROGEN OXIDES ?_____, 25 TONS/YEAR VOC ?_____, 25 TONS/YEAR HYDROGEN SULFIDE ?_____, 25 TONS/YEAR TOTAL REDUCED SULFUR ?_____, 25 TONS/YEAR REDUCED SULFUR COMPOUNDS ?_____, 25 TONS/YEAR FLUORIDES ?_____, 100 TONS/YEAR CARBON MONOXIDE ?_____, 10 TONS/YEAR ANY SINGLE HAZARDOUS AIR POLLUTANT ?_____, 25 TONS/YEAR ANY COMBINATION HAZARDOUS AIR POLLUTANT ?_____, 1 TON/YEAR LEAD OR LEAD COMPOUNDS MEASURED AS ELEMENTAL LEAD ?_____, OR IS A SOURCE LISTED UNDER 326 IAC 2-5.1-3(2) ?_____. EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: _____ PHONE NO. : _____
LOCATION: (CITY AND COUNTY) _____
PERMIT NO. _____ AFS PLANT ID: _____ AFS POINT ID: _____ INSP: _____
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____
_____

DATE/TIME MALFUNCTION STARTED: _____/_____/ 20____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE_____/_____/ 20____ _____ AM / PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: _____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

_____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

_____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____
INTERIM CONTROL MEASURES: (IF APPLICABLE) _____
_____
_____

MALFUNCTION REPORTED BY: _____ TITLE: _____

(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

*SEE PAGE 2

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. This rule applies to the owner or operator of any facility required to obtain a permit under 326 IAC 2-5.1 or 326 IAC 2-6.1.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner.

*** Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

_____

_____

PAGE 2 OF 2

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Air Quality
COMPLIANCE DATA SECTION

MINOR SOURCE OPERATING PERMIT
ANNUAL NOTIFICATION

This form should be used to comply with the notification requirements under 326 IAC 2-6.1-5(a)(5).

Company Name:	**Polar Minerals, Inc.**
Address:	**1703 Bluff Road**
City:	**Mount Vernon, Indiana 47620**
Phone #:	**812 - 838 - 5236**
MSOP #:	**129-9292-00023**

I hereby certify that Polar Minerals Inc. is
9 still in operation.
9 no longer in operation.

I hereby certify that Polar Minerals, Inc is
9 in compliance with the requirements of MSOP **129-9292-00023**.
9 not in compliance with the requirements of MSOP **129-9292-00023**.

Authorized Individual (typed):	**Debra L. Ambrose**
Title:	
Signature:	
Date:	

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

Noncompliance:

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the
Technical Support Document for New Construction and Operation

Source Name:	**Polar Minerals, Inc.**
Source Location:	**1703 Bluff Road, Mt. Vernon, Indiana 47620**
County:	**Posey**
Construction Permit No.:	**MSOP 129-9292-00023**
SIC Code:	**3295**
Permit Reviewer:	**Paula M. Cognitore**

On March 21, 2001, the Office of Air Quality (OAQ) had a notice published in the Mount Vernon Democrat, Mount Vernon, Indiana, stating that Polar Minerals, Inc. had applied for an operating permit for the operation of a talc, barite and calcium carbonate processing source with baghouses for control. The notice also stated that OAQ proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Upon further review, the OAQ has decided to make the following changes to the construction permit: The permit language is changed to read as follows (deleted language appears as ~~strikeouts~~, new language is **bolded)**:

1. Upon further review Condition B.5 has been added:

B.5 Permit Term [326 IAC 2-6.1-7]

This permit is issued for a fixed term of five (5) years from the original date, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications or amendments of this permit do not affect the expiration date.

2. Upon further review Condition D.1.2 , which specified the PM and opacity limits have to both be complied with, thus it has been changed as follows:

D.1.2 Nonmetallic Mineral Processing Plants NSPS [326 IAC 12-1] [40 CFR 60, Subpart OOO]

(a) Particulate matter emissions from the grinding plant shall not exceed 0.05 grams per dry standard cubic meter equivalent to 5.84 pounds per hour, ~~or~~ **and**

(b) visible emissions from the grinding plant shall not exceed seven percent (7%) opacity.

3. Condition D.1.6 has been revised as follows to specify that grain loading and opacity testing is required and the language has been revised to state which stacks are required to be tested. One stack from each of the emission unit groups of the grinding plant shall be tested. This includes the crusher system, one of the two silos, roller mill system, classifier, one of the six bins and the mill system.

D.1.6 Testing Requirements [326 IAC 3-6] [NSPS Subpart OOO]

Within five (5) years from the date of the latest valid compliance demonstration, the Permittee shall perform **particulate matter (grain loading) and** opacity testing ~~or grain loading testing~~ for the grinding plant operations. **Tests shall be performed for the crusher system, stack A, one of the two silos, Stacks B or C, roller mill system, Stack D, classifier, Stack E, one of the six bins, Stacks F - K, and the mill system, Stack M**. ~~This~~ **These** test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. In addition to these requirements, IDEM may require compliance testing when necessary to determine if these facilities are in

compliance.

4. Upon further review the following Conditions have been added to Section D.2 (Section D.2 has been renumbered accordingly):

D.2.1 General Provisions Relating to NSPS [326 IAC 12-1] [40 CFR 60, Subpart A]

The provisions of 40 CFR 60 Subpart A - General Provisions, which are incorporated as 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR 60.670 - 60.676, Subpart OOO)

D.2.2 Nonmetallic Mineral Processing Plants NSPS [326 IAC 12-1] [40 CFR 60, Subpart OOO]

(a) Particulate matter emissions from the grinding plant shall not exceed 0.05 grams per dry standard cubic meter, and

(b) visible emissions from the grinding plant shall not exceed seven percent (7%) opacity.

D.2.6 Testing Requirements [326 IAC 3-6] [NSPS Subpart OOO]

Within five (5) years from the date of the latest valid compliance demonstration, the Permittee shall perform particulate matter (grain loading) and opacity testing for the grinding plant operations. Tests shall be performed for the Bepex Mill #1, one of the stacks N (#186) through Y (#197), Ball Mill and Bepex Mill, two of the Stacks Z (#198) through AC (#201), Pellet Mill, one of the Stacks AE and AF, and Bepex Mill, Stack AN. These test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. In addition to these requirements, IDEM may require compliance testing when necessary to determine if these facilities are in compliance.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Minor Source Operating Permit

Source Background and Description

Source Name:	**Polar Minerals, Inc.**
Source Location:	**1703 Bluff Road, Mt. Vernon, Indiana 47620**
County:	**Posey**
SIC Code:	**3295**
Operation Permit No.:	**MSOP 129-9292-00023**
Permit Reviewer:	**Paula M. Cognitore**

The Office of Air Quality (OAQ) has reviewed an application from Polar Minerals, Inc relating to the operation of a talc, barite and calcium carbonate processing source.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

(a) One (1) grinding plant, installed in 1991, exhausted to stacks A through K and M controlled by twelve (12) baghouses, known as A through K and M, capacity: 14.0 tons of talc, barite or calcium carbonate per hour, consisting of the following:

(1) One (1) crusher system (capacity 50.0 tons per hour),

(2) Two (2) silos,

(3) One (1) roller mill system,

(4) One (1) classifier,

(5) Six (6) bins,

(6) One (1) mill system; and

(7) One (1) gas-fired heater, rated at 4.0 million British thermal units per hour.

(b) One (1) hammer mill micronizer, known as Bepex Mill #1, installed in 1994, exhausted to stacks N (#186) through Y (#197) connected pneumatically to baghouses N (#186) through Y (#197), capacity: 2,000 pounds per hour.

(c) Four (4) silos, known as N through Q, installed in 1994, exhausted to stacks N (#186) through Q (#189) connected pneumatically to baghouses N (#186) through Q (#189), capacity: 8,313

cubic feet per hour, each.

(d) Two (2) silos, known as R and S, installed in 1994, exhausted to stacks R (#190) and S (#191), connected pneumatically to baghouses R (#190) and S (#191), capacity: 6,107 cubic feet per hour, each.

(e) Five (5) silos, known as T through X, installed in 1994, exhausted to stacks T (#192) through X (#196), connected pneumatically to baghouses T (#192) through X (#196), capacity: 11,083 cubic feet per hour, each.

(f) One (1) Ball Mill micronizer, capacity: 15,000 pounds per hour and one (1) Bepex Mill micronizer, capacity: 2,000 pounds per hour, two (2) silos, capacity: 6,688 cubic feet, each and one (1) steric acid treatment surface coater, installed in 1994, connected pneumatically to baghouses Z (#198) through AC (#201)

(g) One (1) pellet mill, known as Pellet Mill , installed in 1996, exhausted to stacks AE and AF pneumatically connected to baghouses AE and AF, capacity: 16,000 pounds of talc per hour.

(h) One (1) Bepex Mill micronizer, known as #3, exhausted to Stack AN, connected to baghouse AN for particulate matter control, installed in 1997, capacity: 1.0 ton per hour.

(i) Five (5) material storage silos, known as Silo A through Silo D and Silo 14, exhausted to stacks AG through AK respectively, connected to baghouses AG through AK respectively, installed in 1997, capacity: 12,038 cubic feet, each. These silos are also connected to a common baghouse, known as AM for unloading purposes.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operating at this source during this review process.

New Emission Units and Pollution Control Equipment

There are no new facilities proposed at this source during this review process.

Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

(a) Notice Only Change 129-10559 to 129-8814-00023, issued February 17 1999,

(b) CP 129-8814-00023, issued on October 21, 1997,

(c) Exemption 129-5816-00023, issued on June 25, 1996,

(d) AA to Registration 129-3798-00023 and Exemption 129-4172-00023, issued March 31, 1995,

(e) Exemption 129-4172-00023, issued December 21, 1994,

(f) Registration 129-3798, issued July 25, 1994; and

(g) CP 129-1969-00023, issued June 24, 1991.

All conditions from previous approvals were incorporated into this permit except the following:

CP 129-1969-00023, issued on June 24, 1991

Condition #5: That the grinding plant shall comply with New Source Performance Standards (NSPS, 326 IAC 12) for Nonmetallic Mineral Processing Plants (40 CFR 60.670 - 60.676, Subpart OOO). Particulate matter emissions from the plant shall not exceed 0.05 grams per dry standard cubic meter pursuant to that rule. Based on the total gas flow from the 13 baghouses of 41,776 DSCF subject to 40 CFR 60, Subpart OOO, emissions shall be limited to 7.83 pounds per hour (34.3 tons per year).

Since one of the baghouses has been removed the equivalent limit to 0.05 grams per dry standard cubic meter has been recalculated and shall state that based upon the total gas flow from the 12 baghouses of 31,150 dry standard cubic feet per minute subject to 40 CFR 60, Subpart OOO, emissions shall be limited to 5.84 pounds per hour.

Air Pollution Control Justification as an Integral Part of the Process

(a) Pursuant to CP 129-8814-00023, the company submitted justification such that the seven (7) baghouses identified as AG, AH, AI, AJ, AK, AM and AN be considered as an integral part of the process because the baghouses are used to collect product material.

(b) Pursuant to CP 129-5816-00023, it was determined that the two (2) baghouses identified as AE and AF are integral to the process because the baghouses are used as air seperators; therefore, the pellet mill could not operate with out the use of the baghouses.

IDEM, OAQ has evaluated the justifications and agreed that the nine (9) baghouses will be considered as an integral part of the process. Therefore, the permitting level will be determined using the potential to emit after the air pollution control equipment. Operating conditions in the proposed permit will specify that these nine (9) baghouses shall operate at all times when their respective facility is in operation.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (EF)
A	grinding plant (crusher)	10.0	0.67	2,000	70
B	grinding plant (silo)	10.0	0.67	1,500	70
C	grinding plant (silo)	40.0	0.67	1,500	70
D	grinding plant (roller mill)	5.0	1.83	1,400	180
E	grinding plant (classifier)	8.0	0.67	1,250	150
F	grinding plant (bin)	40.0	0.67	1,500	150
G	grinding plant (bin)	40.0	0.67	1,500	150
H	grinding plant (bin)	40.0	0.67	1,500	150
I	grinding plant (bin)	40.0	0.67	1,750	150
J	grinding plant (bin)	40.0	0.67	1,750	150

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (EF)
K	grinding plant (bin)	20.0	0.67	1,500	70
M	grinding plant (mill)	5.0	1.83	14,000	180
N	Bepex Mill #1/silo	54.0	0.67	900	150
O	Bepex Mill #1/silo	54.0	0.67	900	150
P	Bepex Mill #1/silo	54.0	0.67	900	150
Q	Bepex Mill #1/silo	54.0	0.67	900	150
R	Bepex Mill #1/silo	54.0	0.67	1,500	150
S	Bepex Mill #1/silo	54.0	0.67	1,500	150
T	Bepex Mill #1/silo	72.0	0.67	1,500	150
U	Bepex Mill #1/silo	72.0	0.67	1,500	150
V	Bepex Mill #1/silo	72.0	0.67	1,500	150
W	Bepex Mill #1/silo	72.0	0.67	1,500	150
X	Bepex Mill #1/silo	72.0	0.67	1,500	150
Y	Bepex Mill #1/silo	72.0	0.67	3,000	150
Z	Ball Mill/Bepex Mill	30.0	2.0	9,000	180
AA	Ball Mill/Bepex Mill	45.0	0.83	960	150
AB	Ball Mill/Bepex Mill	45.0	0.83	960	150
AC	Ball Mill/Bepex Mill	30.0	0.83	1,500	180
AE	Pellet Mill	26.0	1.0	3,000	280
AF	Pellet Mill	26.0	1.0	8,000	280
AG	Silo A	72.0	0.5	680	150
AH	Silo B	72.0	0.5	1550	150
AI	Silo C	72.0	0.5	680	150
AJ	Silo D	72.0	0.5	680	150
AK	Silo No 14	72.0	0.5	680	150
AM	Silos A, B, C, D, No 14	10.0	0.5	680	150
AN	Bepex Mill Micronizer #3	15.0	1.0	3,000	180

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on December 12, 1997, with additional information received on November 12 and December 8, 2000.

Emission Calculations

See pages 1 through 5 of 5 of Appendix A of this document for detailed emissions calculations.

In addition to the nine (9) baghouses that have been determined to be an integral part of the process, the remaining baghouses are pneumatically fed; therefore, PM and PM_{10} after control emissions were used to determine permit level.

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	**Potential To Emit** (tons/year)
PM	114
PM_{10}	52.6
SO_2	0.011
VOC	0.096
CO	1.47
NO_X	1.75

HAPs	**Potential To Emit** (tons/year)
Benzene	0.00004
Dichlorobenzene	0.00002
Formaldehyde	0.001
Hexane	0.032

HAPs	Potential To Emit (tons/year)
Toluene	0.00006
Lead	0.000009
Cadmium	0.00002
Chromium	0.00002
Manganese	0.000007
Nickel	0.00004
TOTAL	0.032

The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of PM and PM_{10} is equal to or greater than 25 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-6.1.

The potential PM emissions are considerably higher than the potential PM_{10} emissions due to the fact that the fugitive PM emissions from unpaved roads are 79.0 tons per year and the potential PM_{10} emissions from unpaved roads are 16.8 tons per year.

Actual Emissions

No previous emission data has been received from the source.

Limited Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.

	Limited Potential to Emit (tons/year)						
Process/facility	**PM**	**PM_{10}**	**SO_2**	**VOC**	**CO**	**NO_X**	**HAPS**
grinding plant	16.5	16.5	0.00	0.00	0.00	0.00	0.00
grinding plant (combustion)	0.00003	0.0001	0.011	0.096	1.47	1.75	0.032
Bepex Mill #1, silos N through X	6.50	6.50	0.00	0.00	0.00	0.00	0.00
Ball Mill, Bepex Mill, silos, surface coater	4.67	4.67	0.00	0.00	0.00	0.00	0.00
Pellet Mill	4.12	4.12	0.00	0.00	0.00	0.00	0.00
Bepex Mill #3	1.12	1.12	0.00	0.00	0.00	0.00	0.00
Silos A - D	1.86	1.86	0.00	0.00	0.00	0.00	0.00

Fugitive Emissions	79.6	17.8	0.00	0.00	0.00	0.00	0.00
Total Emissions	114	52.6	0.011	0.096	1.47	1.75	0.032

County Attainment Status

The source is located in Posey County.

Pollutant	Status
PM_{10}	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_X) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Posey County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_X emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Posey County has been classified as attainment or unclassifiable for all remaining criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2, 40 CFR 52.21, or 326 IAC 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD, Part 70 or FESOP Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	34.4
PM_{10}	52.6
SO_2	0.011
VOC	0.096
CO	1.47
NO_X	1.75

(a) This existing source is **not** a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not in one of the 28 listed source categories.

(b) These emissions were based on the application submitted by the company.

326 IAC 2-7 (Part 70 Permit Program)

This existing source, emissions covered under this permit MSOP 129-9292-00023, is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(1) each criteria pollutant is less than one hundred (100) tons per year,

(2) a single hazardous air pollutant (HAP) is less than ten (10) tons per year, and

(3) any combination of HAPS is less than twenty-five (25) tons/year.

This status is based on all the air approvals issued to the source. This status has been verified by the OAQ inspector assigned to the source.

Federal Rule Applicability

(a) The grinding plant that processes nonmetallic minerals is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.670 - 60.676, Subpart OOO). Particulate matter emissions from the grinding plant shall not exceed 0.05 grams per dry standard cubic meter equivalent to 5.84 pounds per hour or visible emissions shall not exceed seven percent (7%) opacity.

Since the capacity of Bepex Mill #1, Ball Mill, Bepex Mill, Pellet Mill and Bepex Mill No.3 does not exceed 25.0 tons per hour, each, the requirements of 326 IAC 12, (40 CFR 60.670 - 60.676, Subpart OOO) do not apply.

(b) The one (1) gas-fired heater, is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.40c, Subpart Dc because it is rated at less than 10 million British thermal units per hour.

(c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR art 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration)

This talc, barite and calcium carbonate processing source is a minor PSD source since all pollutants are under the applicable major PSD threshold levels. The sum of the hourly allowable PM limits, when you include the NSPS Subpart OOO limit for the grinding plant, is 50.4 pounds per hour, equivalent to 221 tons per year. Therefore, the requirements of 326 IAC 2-2 are not applicable to this source.

326 IAC 2-6 (Emission Reporting)

This source is located in Posey County and the potential to emit PM and PM_{10} is less than one hundred

(100) tons per year, therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary alternative opacity limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 6-2-4 (Particulate Emissions Limitations for Facilities Constructed after September 21, 1983)

The one (1) gas-fired heater, rated at 4.0 million British thermal units per hour, installed in 1991, must comply with the requirements of 326 IAC 6-2-4.

The emission limitations are based on the following equation is given in 326 IAC 6-2-4:

$$Pt = 1.09/Q^{0.26}$$

where:

Pt = Pounds of particulate matter emitted per million British thermal units (lb/MMBtu) heat input

Q = Total source maximum operating capacity rating in million British thermal units per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

For the one (1) gas-fired heater, rated at 4.0 million British thermal units per hour:

$Pt = 1.09/(4.0)^{0.26} = 0.76$ lb/MMBtu heat input

Based on Appendix A, the potential PM emission rate is:

0.00003 ton/yr × (2000 lbs/ton / 8760 hrs/yr) = 0.000007 lb/hr
(0.000007 lb/hr / 4.0 MMBtu/hr) = 0.000002 lb PM per MMBtu

Pursuant to 326 IAC 6-2-4(a) if Q is less than 10.0 million British thermal units per hour, then Pt shall not exceed 0.6 lb/MMBtu; therefore, the one (1) gas-fired heater will comply with this rule.

326 IAC 6-3-2 (Process Operations)

(a) The particulate matter (PM) from the crushing system located in the grinding plant shall be limited to 44.6 pounds per hour, when operating at a process weight rate of 50.0 tons per hour, calculated by the following:

Interpolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

Baghouse A shall be in operation at all times the crushing system located in the grinding plant is in operation, in order to comply with this limit.

(b) The particulate matter (PM) from the grinding plant shall be limited to 24.0 pounds per hour, when operating at a process weight rate of 14.0 tons per hour, calculated by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

Since the after control PTE from the grinding plant is 3.77 pounds per hour, including the crushing operations, the operation complies with the above 326 IAC 6-3-2 limits.

Baghouses B through K and M shall be in operation at all times the grinding plant is in operation, in order to comply with this limit.

(c) The particulate matter (PM) from the Bepex Mill, Ball Mill, Bepex Mill #1, Pellet Mill and Bepex Mill #3, shall be limited to 4.10, 15.8, 4.10,16.5 and 4.10 pounds per hour, respectively when operating at process weight rates of 1.0, 7.5 ,1.0, 8.0 and 1.0 tons per hour respectively, calculated by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

Baghouses N through Z, AA through AF and AN shall be in operation at all times the Bepex Mill, Ball Mill, Bepex Mill #1, Pellet Mill and Bepex Mill #3 are in operation, in order to comply with this limit.

Conclusion

The operation of this talc, barite and calcium carbonate processing source shall be subject to the conditions of the attached proposed Minor Source Operating Permit 129-9292-00023.

Appendix A: Emission Calculations
Baghouse Operations

Company Name: **Polar Minerals, Inc.**
Address City IN Zip: **1703 Bluff Road, Mt Vernon, Indiana 47620**
MSOP: **129-9292**
Plt ID: **129-00023**
Reviewer: **Paula M Cognitore**
Date: **December 12, 1997**

Baghouse ID	Control Efficiency	Grain Loading per Actual Cubic foot of Outlet Air (grains/cub. ft.)	Total Filter Area (sq. ft.)	Air to Cloth Ratio (acfm/sq. ft.)	Emission Rate after Controls (lb/hr)	Emission Rate after Controls (tons/yr)
Grinding Plant						
A	99.9%	0.01	382	5.20	0.170	0.746
B	99.9%	0.01	265	5.70	0.129	0.567
C	99.9%	0.01	265	5.70	0.129	0.567
D	99.9%	0.01	3442	4.10	1.21	5.30
E	99.9%	0.01	265	4.70	0.107	0.468
F	99.9%	0.01	265	5.70	0.129	0.567
G	99.9%	0.01	265	5.70	0.129	0.567
H	99.9%	0.01	265	5.70	0.129	0.567
I	99.9%	0.01	382	4.60	0.151	0.660
J	99.9%	0.01	382	4.60	0.151	0.660
K	99.9%	0.01	265	5.70	0.129	0.567
M	99.9%	0.01	3442	4.10	1.21	5.30
Bepex Mill #1/silo						
N (186)	99.9%	0.01	170	5.65	0.082	0.361
O (187)	99.9%	0.01	170	5.65	0.082	0.361
P (188)	99.9%	0.01	170	5.65	0.082	0.361
Q (189)	99.9%	0.01	170	5.65	0.082	0.361
R (190)	99.9%	0.01	265	5.66	0.129	0.563
S (191)	99.9%	0.01	265	5.66	0.129	0.563
T (192)	99.9%	0.01	265	5.66	0.129	0.563
U (193)	99.9%	0.01	265	5.66	0.129	0.563
V (194)	99.9%	0.01	265	5.66	0.129	0.563
W (195)	99.9%	0.01	265	5.66	0.129	0.563
X (196)	99.9%	0.01	265	5.66	0.129	0.563
Y (197)	99.9%	0.01	780	3.8	0.254	1.11
Ball Mill/Bepex Mill						
Z (198)	99.9%	0.01	2203	4.1	0.774	3.39
AA (199)	99.0%	0.01	170	5.6	0.082	0.360
AB (200)	99.0%	0.01	170	5.6	0.082	0.357
AC (201)	99.0%	0.01	265	5.7	0.129	0.563
Pellet Mill						
AE	99.9%	0.01	980	3.1	0.260	1.14
AF	99.9%	0.01	2142	3.7	0.679	2.98
Silos						
AG	99.9%	0.01	170	4.0	0.058	0.255
AH	99.9%	0.01	382	4.1	0.134	0.588
AI	99.9%	0.01	170	4.0	0.058	0.255
AJ	99.9%	0.01	170	4.0	0.058	0.255
AK	99.9%	0.01	170	4.0	0.058	0.255
AM	99.9%	0.01	170	4.0	0.058	0.255
Bepex Mill #3						
AN	99.9%	0.01	677	4.4	0.255	1.12
					7.94	**34.8**

Methodology

Emission Rate in lbs/hr (after controls) = (grains/cub. ft.) (sq. ft.) ((cub. ft./min.)/sq. ft.) (60 min/hr) (lb/7000 grains)

Emission Rate in tons/yr = (lbs/hr) (8760 hr/yr) (ton/2000 lb)

Emission Rate in lbs/hr (before controls) = Emission Rate (after controls): (lbs/hr)/(1-control efficiency)

Emission Rate in tons/yr = (lbs/hr) (8760 hr/yr) (ton/2000 lb)

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100

Company Name: Polar Minerals, Inc.
Address City IN Zip: 1703 Bluff Road, Mt. Vernon Indiana 47620
MSOP: 129-9292
Plt ID: 120-00023
Reviewer: Paula M. Cognitore
Date: December 12, 1997

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
4.00	35.04

Heater located in grinding plant controlled by a baghouse

Pollutant	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0	5.5	84.0
Control Efficiency	99.90%			**see below		
Potential Emission in tons/yr	0.033	0.133	0.011	1.75	0.096	1.47
Potential Emission (after controls) in tons/yr	0.00003	0.0001				

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).
See page 4 for HAPs emissions calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler
HAPs Emissions

Company Name: **Polar Minerals, Inc.**
Address City IN Zip: **1703 Bluff Road, Mt. Vernon Indiana 47620**
MSOP: **129-9292**
Plt ID: **120-00023**
Reviewer: **Paula M. Cognitore**
Date: **December 12, 1997**

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	3.679E-05	2.102E-05	1.314E-03	3.154E-02	5.957E-05

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	8.760E-06	1.927E-05	2.453E-05	6.658E-06	3.679E-05

Methodology is the same as page 2.

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emission Calculations
Fugitive Emissions

Company Name: Polar Minerals, Inc.
Address City IN Zip: 1703 Bluff Road, Mt Vernon, Indiana 47620
MSOP: 129-9292
Plt ID: 129-00023
Reviewer: Paula M. Cognitore
Date: December 12, 1997

Storage **PM Emissions**

Storage emissions, which result from wind erosion, are determined by the following calculations:

Ef = 1.7*(s/1.5)*(365-p)/235*(f/15)
= 1.85 lb/acre/day
where s = 1.6 % silt content of material
p = 125 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Ep (storage) = Ef*sc*(40 cuft/ton)/(2000 lb/ton)/(43560 sqft/acre)/(25 ft)*(365 day/yr)
= 0.621 tons/yr
where sc = 50 ,000 tons storage capacity

Unpaved Roads **PM Emissions**

The following calculations determine the amount of emissions created by unpaved roads, based on 8760 hours of use and AP-42, Ch 13.2.2 (Supplement E, 9/98).

28 trip/hr x
0.037 mile/trip x
2 (round trip) x
8760 hr/yr = 18150.7 miles per year

Ef = {k*[(s/12)^0.8]*[(W/3)^b]/[(Mdry/0.2)^c]}*[(365-p)/365]
= 8.70 lb/mile
where k = 10.0 (particle size multiplier for PM-10) (k=10 for PM-30 or TSP)
s = 4.8 mean % silt content of unpaved roads
b = 0.5 Constant for PM-10 (b = 0.5 for PM-30 or TSP)
c = 0.4 Constant for PM-10 (c = 0.4 for PM-30 or TSP)
W = 22.75 tons average vehicle weight
Mdry = 0.2 surface material moisture content, % (default is 0.2 for dry conditions
p = 125 number of days with at least 0.254mm of precipitation (See Figure 13

$$\frac{8.70 \text{ lb/mi} \times 18150.7 \text{ mi/yr}}{2000 \text{ lb/ton}} = 78.95 \text{ tons/yr}$$

Aggregate Handling **PM Emissions**

The following calculations determine the amount of emissions created by truck loading and unloading of aggregate, based on 8760 hours of use and AP-42, Ch 13.2.4 (Fifth edition, 1

Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4
= 0.0016 lb/ton
where k = 0.74 (particle size multiplier)
U = 10 mile/hr mean wind speed
M = 5 % material moisture content

$$\frac{50.00 \text{ tons/hr} \times 0.0016 \text{ lb/ton} \times 8760 \text{ hr/yr}}{2000 \text{ lb/ton}} = 0.354 \text{ tons/yr}$$

Appendix A: Emission Calculations
Fugitive Emissions

Company Name: Polar Minerals, Inc.
Address City IN Zip: 1703 Bluff Road, Mt Vernon, Indiana 47620
MSOP: 129-9292
Plt ID: 129-00023
Reviewer: Paula M. Cognitore
Date: December 12, 1997

Storage **PM10 Emissions**

Storage emissions, which result from wind erosion, are determined by the following calculations:

Ef = 1.7*(s/1.5)*(365-p)/235*(f/15)
= 1.85 lb/acre/day
where s = 1.6 % silt content of material
p = 125 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Ep (storage) = Ef*sc*(40 cuft/ton)/(2000 lb/ton)/(43560 sqft/acre)/(25 ft)*(365 day/yr)
= 0.621 tons/yr
where sc = 50 ,000 tons storage capacity

Unpaved Roads **PM10 Emissions**

The following calculations determine the amount of emissions created by unpaved roads, based on 8760 hours of use and AP-42, Ch 13.2.2 (Supplement E, 9/98).

28 trip/hr x
0.037 mile/trip x
2 (round trip) x
8760 hr/yr = 18150.7 miles per year

Ef = {k*[(s/12)^0.8]*[(W/3)^b]/[(Mdry/0.2)^c]}*[(365-p)/365]
= 1.85 lb/mile
where k = 2.6 (particle size multiplier for PM-10) (k=10 for PM-30 or TSP)
s = 4.8 mean % silt content of unpaved roads
b = 0.4 Constant for PM-10 (b = 0.5 for PM-30 or TSP)
c = 0.3 Constant for PM-10 (c = 0.4 for PM-30 or TSP)
W = 22.75 tons average vehicle weight
Mdry = 0.2 surface material moisture content, % (default is 0.2 for dry conditions)
p = 125 number of days with at least 0.254mm of precipitation (See Figure 13.2

$$\frac{1.85 \text{ lb/mi} \times 18150.7 \text{ mi/yr}}{2000 \text{ lb/ton}} = 16.8 \text{ tons/yr}$$

Aggregate Handling **PM10 Emissions**

The following calculations determine the amount of emissions created by truck loading and unloading of aggregate, based on 8760 hours of use and AP-42, Ch 13.2.4 (Fifth edition, 1/9

Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4
= 0.0016 lb/ton
where k = 0.74 (particle size multiplier)
U = 10 mile/hr mean wind speed
M = 5 % material moisture content

$$\frac{50.00 \text{ tons/hr} \times 0.0016 \text{ lb/ton} \times 8760 \text{ hr/yr}}{2000 \text{ lb/ton}} = 0.354 \text{ tons/yr}$$